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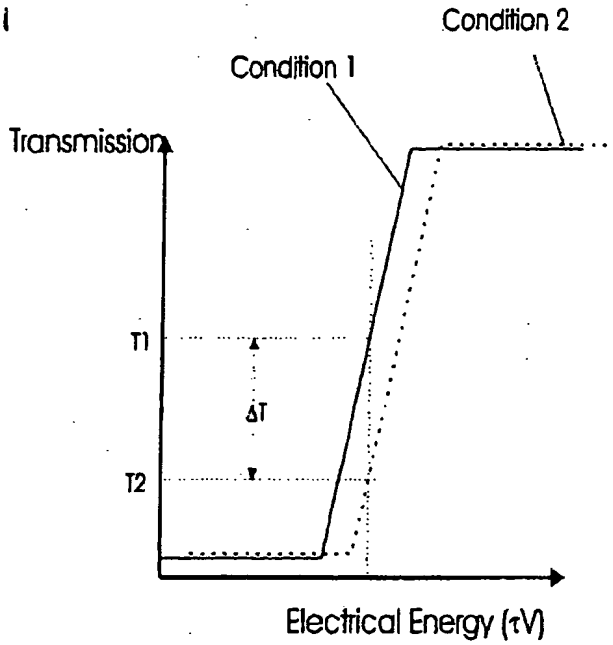
FIG 1



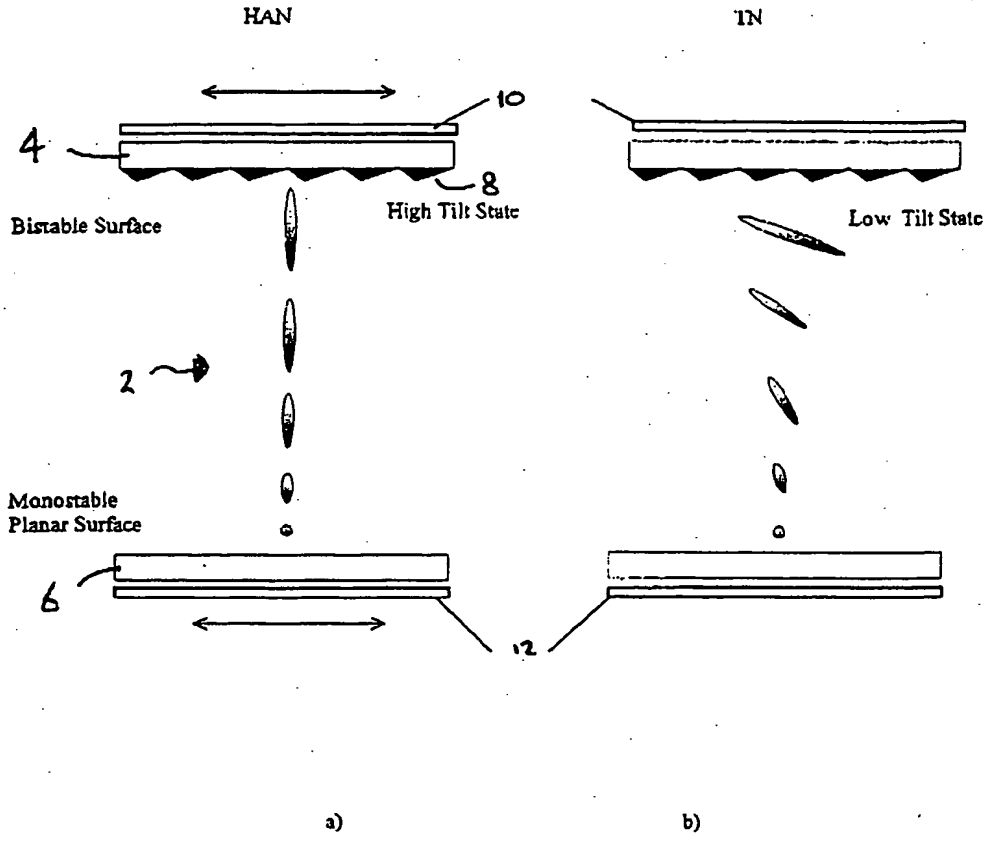

HAN
TN
10
4
8
Bistable Surface
High Tilt State
Low Tilt State
2
Monostable
Planar Surface
6
12
a)
b)

Figure 2.

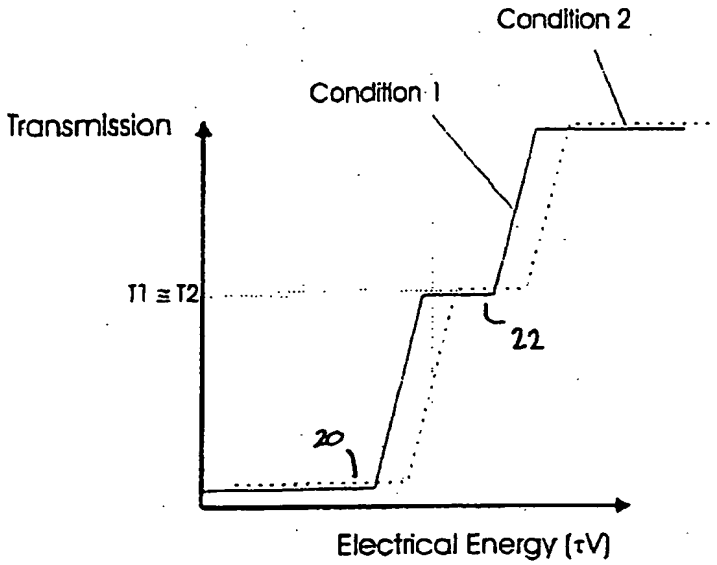


Figure 3.

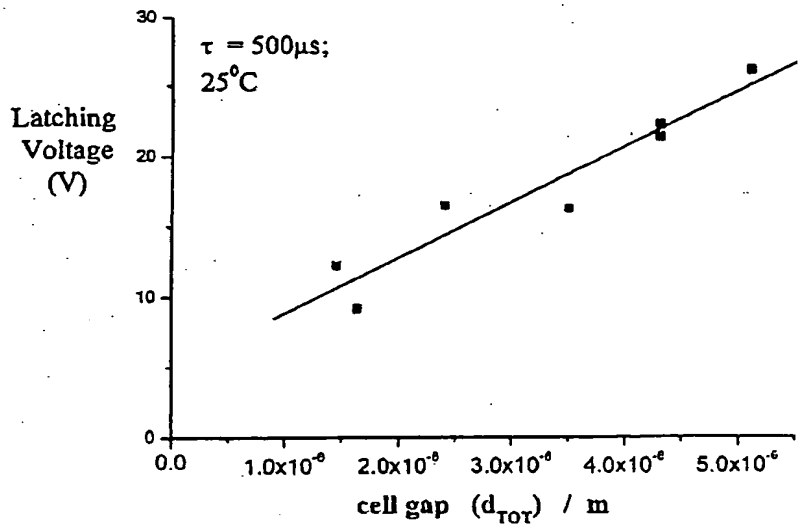


Figure 4.

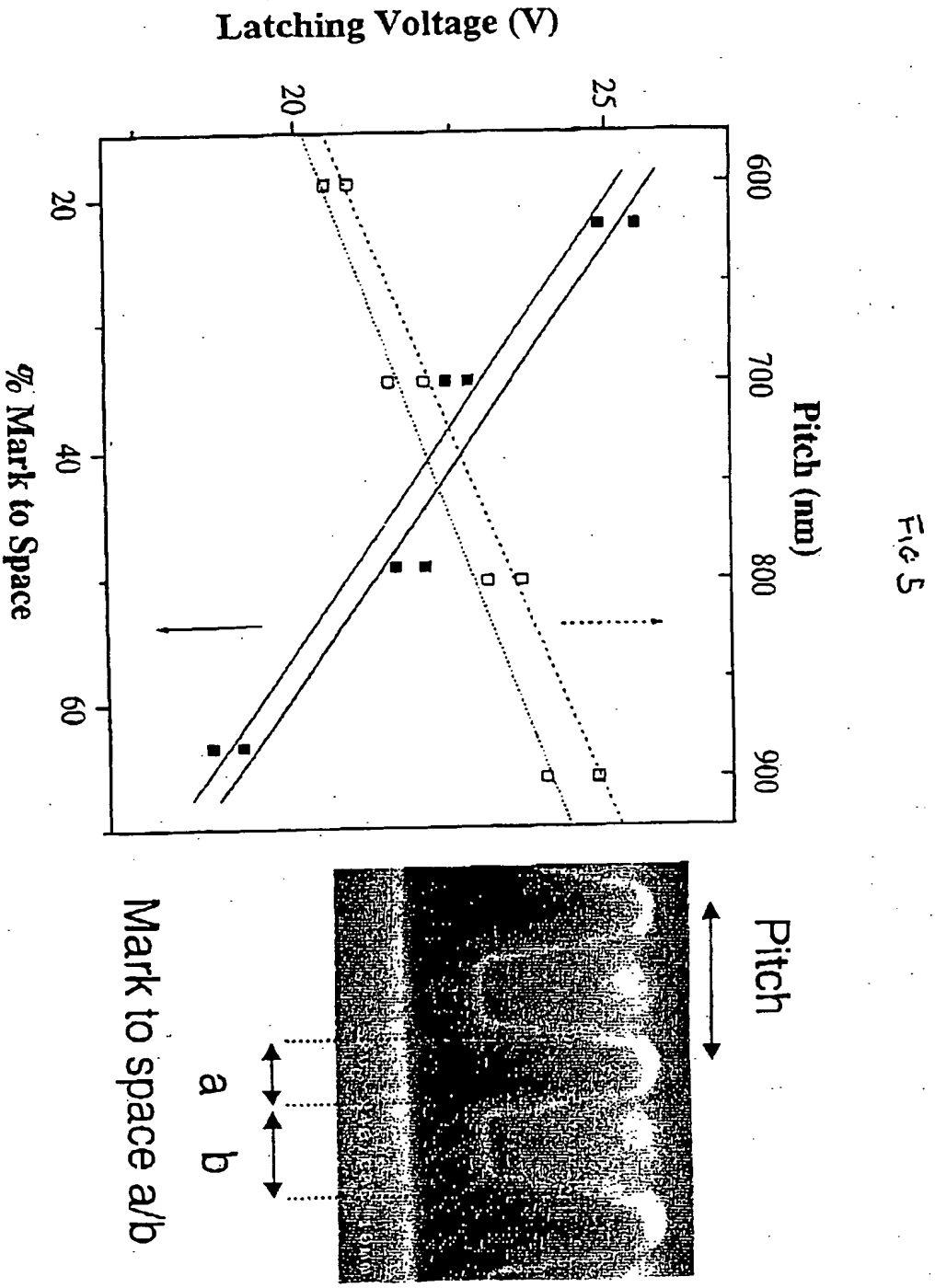

Latching Voltage (V)
20
25
% Mark to Space
20
40
60
Pitch (nm)
600
700
800
900
Mark to space a/b
a
b
Pitch

FIG 5

App No.: 10/612,877 Docket No.: 52712000400
Inventor: John C. JONES et al.
Title: PATTERNED LIGHT MODULATING DEVICE

Fig 6

Grating shape and latching threshold

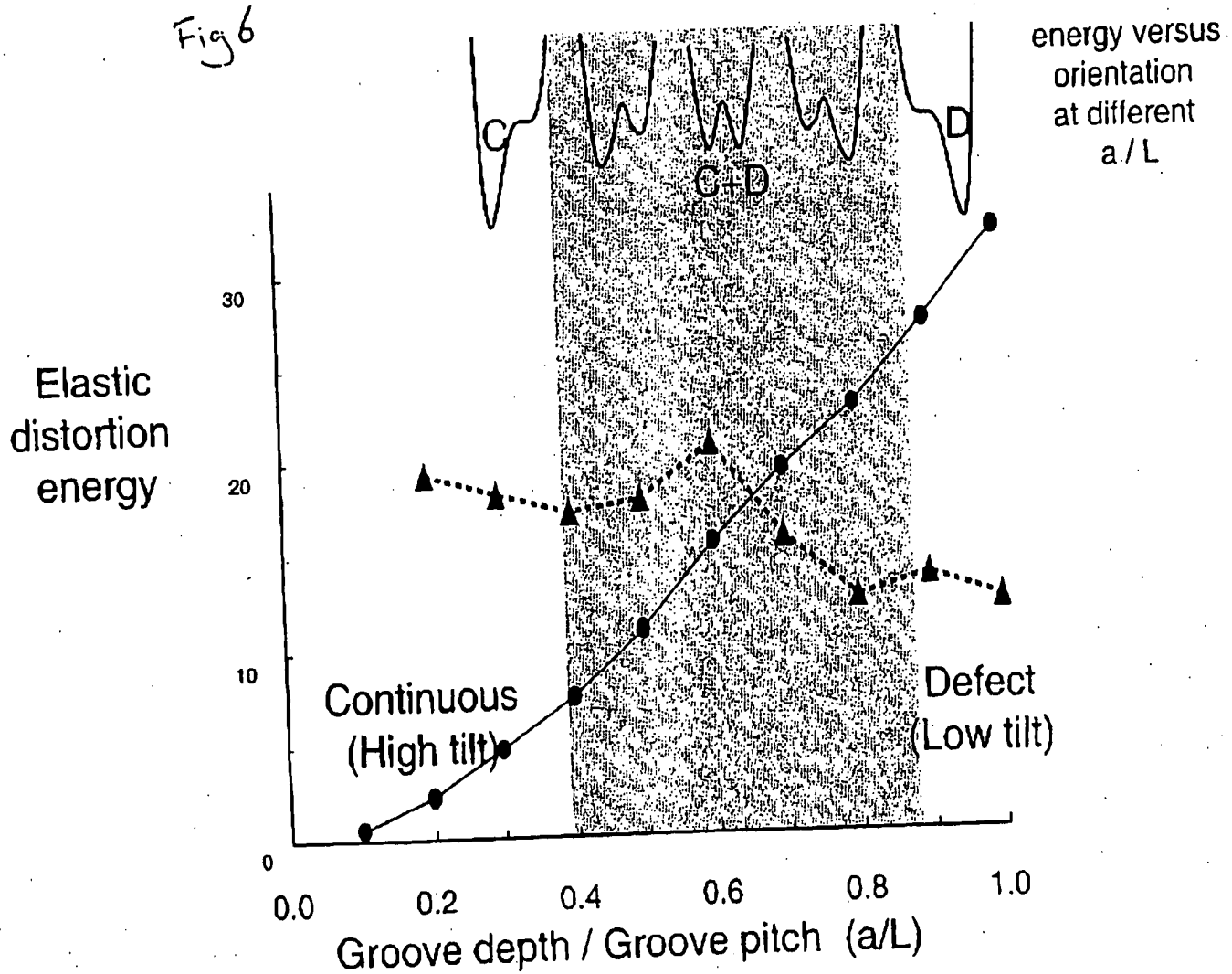


FIG 7

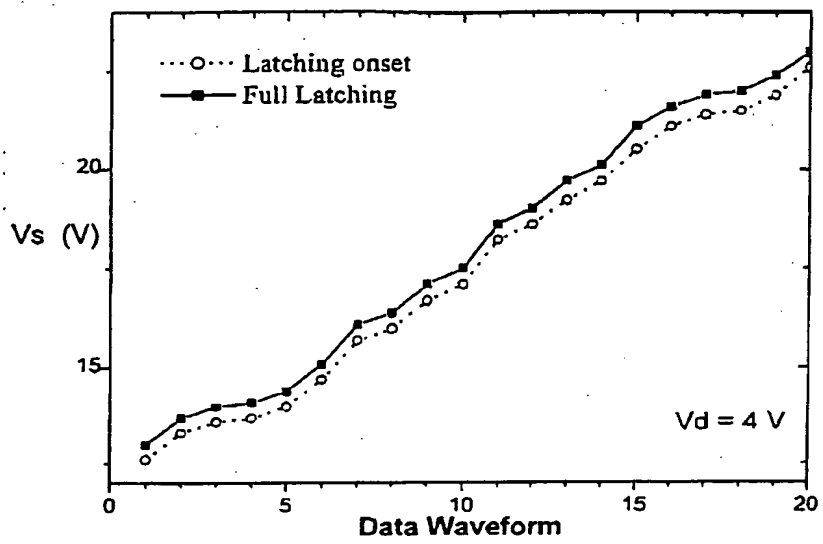

Latching onset
Full Latching
Vs (V)
20
15
Vd = 4 V
0
5
10
15
20
Data Waveform

FIG 8

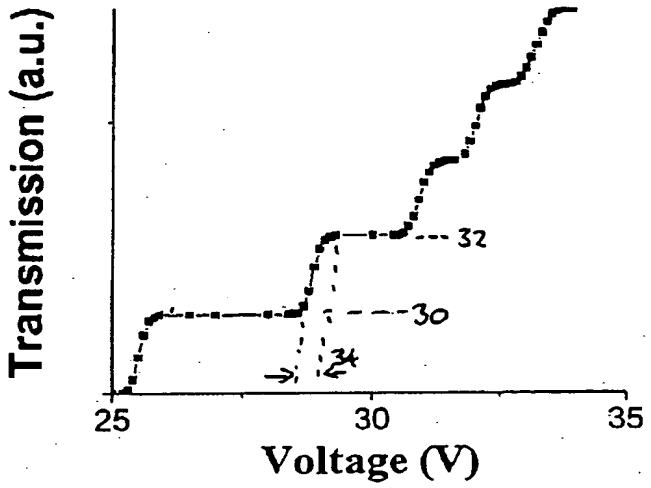

Transmission (a.u.)
32
30
34
25
30
35
Voltage (V)

FIG 9

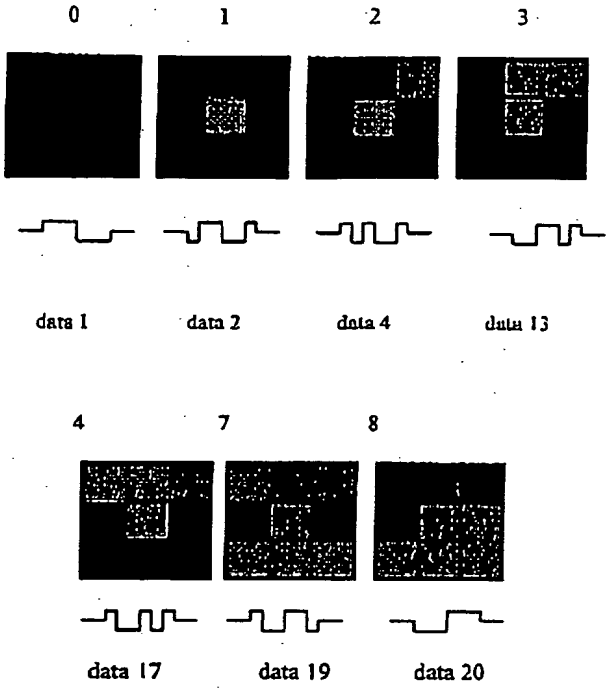
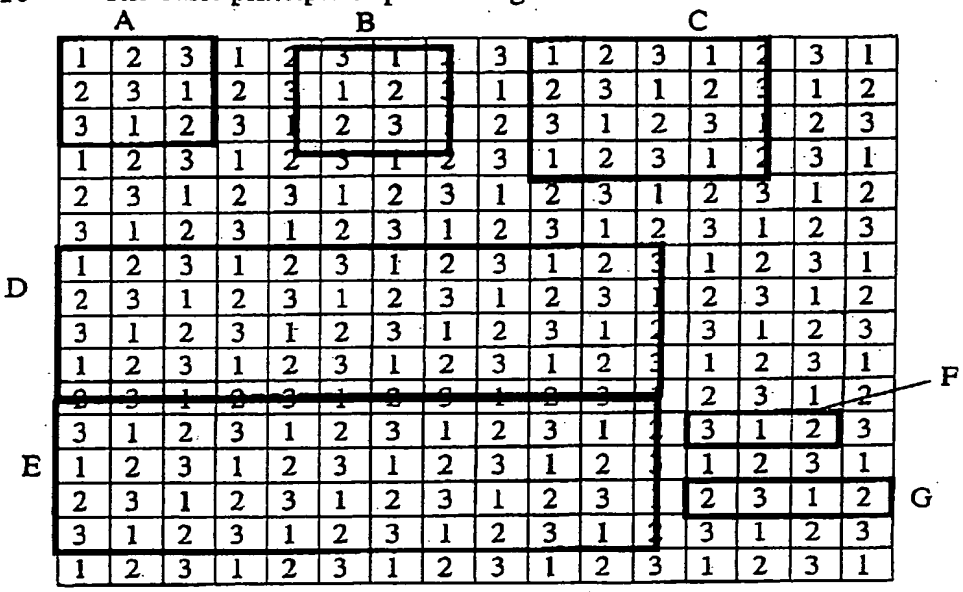


Figure 10 The basic principle of patterned grids.



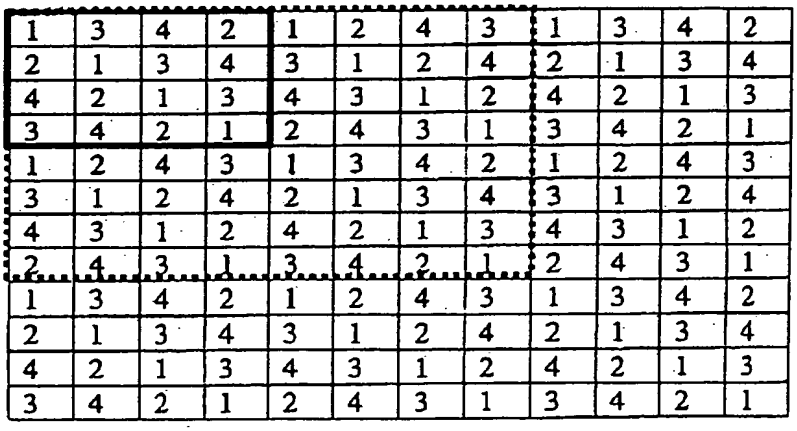


Figure 11

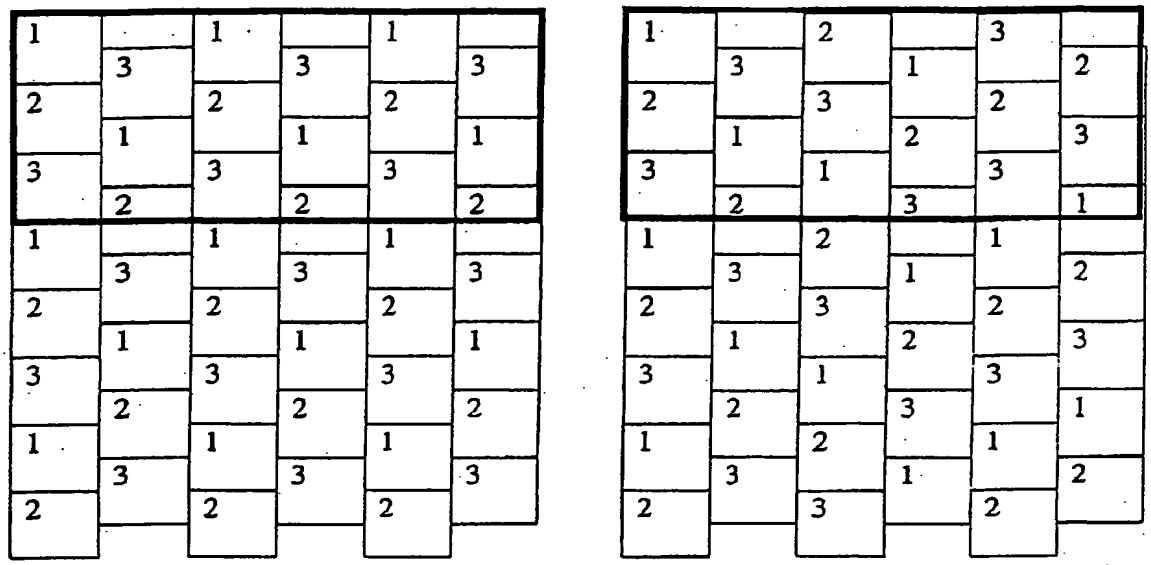


Figure 12 Examples of super structures used for 4 analogue grey levels.

Figure 13

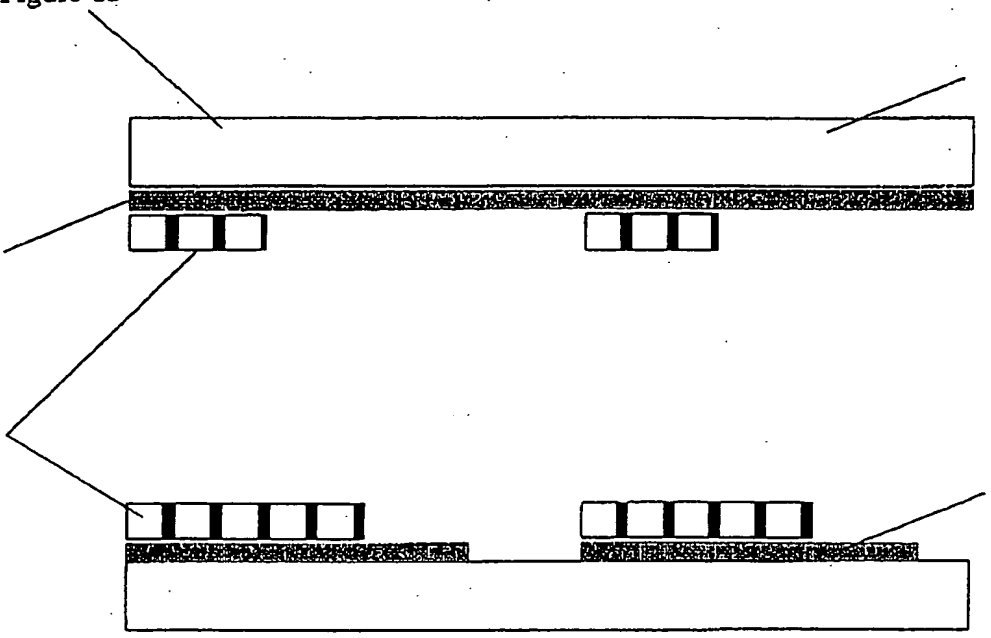
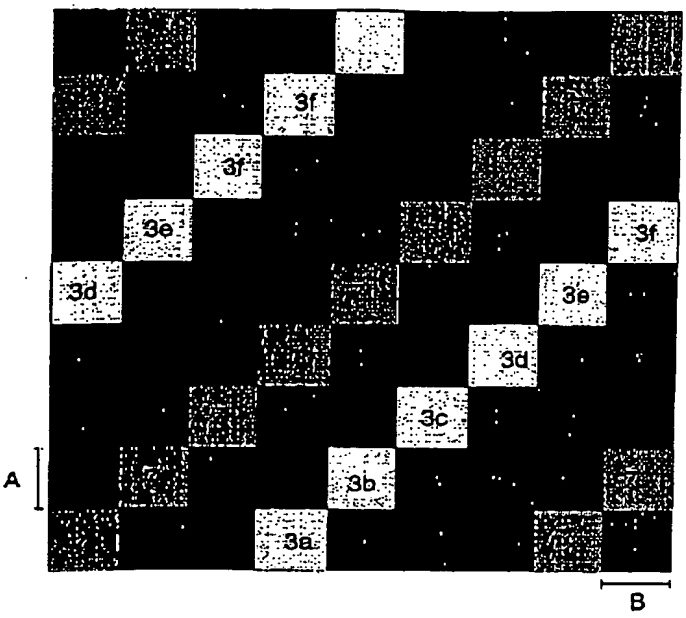


Figure 14

	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1
A	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1
	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2
	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1
	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1
	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2
B	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1
	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1
	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2
	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1
	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1
	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2
C	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1
	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1
	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2
	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1

11/14

Figure 15a



Grid Structure:
Comprising 7 different pitches
Pitch 1=1200nm
Pitch 2=1100nm
Pitch 3=1000nm
Pitch 4=900nm
Pitch 5=800nm
Pitch 6=700nm
Pitch 7=600nm

Equal mark to space
Pitch 1=600nm chrome 600nm gap
Pitch 2=550nm chrome 550nm gap
Pitch 3=500nm chrome 500nm gap
etc

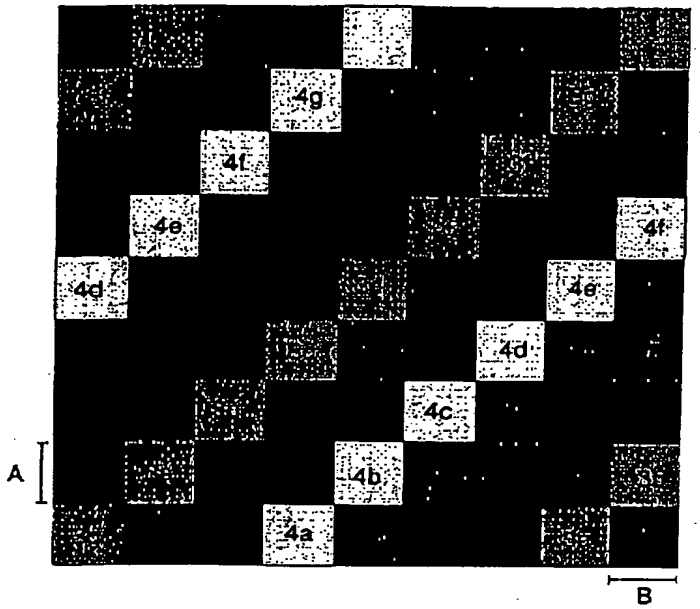
Horizontal repeat unit 49 squares with 1 square translation between successive rows.
This is due to corrections for imperfect 4.8micron gridding

Each Grating Length A=4.8microns
Each grating width is tiled to fit a whole number of grooves, however in order to rebalance the area dimension B expresses the width of the grating regions:

Pitch 1: 4 whole pitches B=4.8microns
Pitch 2: 2a 4 whole pitches B=4.4microns
2b 5 whole pitches B=5.5microns
2c 4 whole pitches B=4.4microns
2d 4 whole pitches B=4.4microns
2e 5 whole pitches B=5.5microns
2f 4 whole pitches B=4.4microns
2g 4 whole pitches B=4.4microns
Pitch 3: 3a 5 whole pitches B=5.0microns
3b 5 whole pitches B=5.0microns
3c 5 whole pitches B=5.0microns
3d 5 whole pitches B=5.0microns
3e 5 whole pitches B=5.0microns
3f 4 whole pitches B=4.0microns
3g 5 whole pitches B=5.0microns
Pitch 4: 4a 5 whole pitches B=4.5microns
4b 5 whole pitches B=4.5microns
4c 6 whole pitches B=5.4microns
4d 5 whole pitches B=4.5microns
4e 5 whole pitches B=4.5microns
4f 5 whole pitches B=5.4microns
4g 5 whole pitches B=4.5microns
Pitch 5: 6 whole pitches B=4.8microns
Pitch 6: 6a 7 whole pitches B=4.9microns
6b 7 whole pitches B=4.9microns
6c 7 whole pitches B=4.9microns
6d 7 whole pitches B=4.9microns
6e 6 whole pitches B=4.2microns
6f 7 whole pitches B=4.9microns
6g 7 whole pitches B=4.9microns
Pitch 7: 8 whole pitches B=4.8microns

Error row a: -0.4 microns
Error row b: +0.7microns
Error row c: +0.5microns
Error row d: -0.4microns
Error row e: +0.0microns
Error row f: -0.5microns
Error row g: -0.4microns

Fig 15b



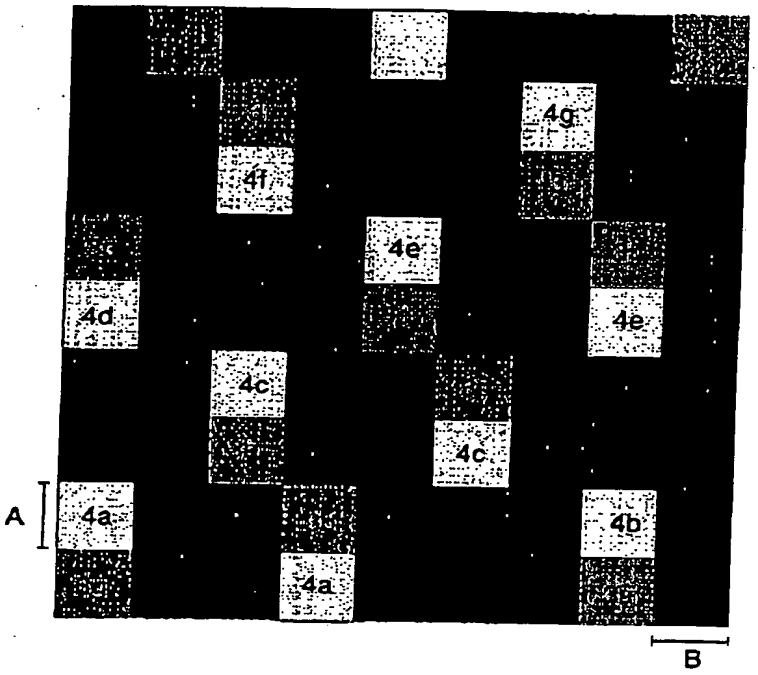
Grid Structure:
Comprising 7 different pitches
Pitch 1=1200nm
Pitch 2=1100nm
Pitch 3=1000nm
Pitch 4=900nm
Pitch 5=800nm
Pitch 6=700nm
Pitch 7=600nm

Equal mark to space
Pitch 1=600nm chrome 600nm gap
Pitch 2=550nm chrome 550nm gap
Pitch 3=500nm chrome 500nm gap
etc

Horizontal repeat unit 49 squares with 1 square translation between successive rows.
This is due to corrections for imperfect 4.8micron gridding

Each Grating Length A=4.8microns
Each grating width is tiled to fit a whole number of grooves, however in order to rebalance the area dimension B expresses the width of the grating regions: widths for individual labelled areas identical to area 3 (pattern 7) but as stated above regions have been reordered.

Fig 15c



Dimensions of regions (2a etc) identical to those written down for Area 3. However again the layout of regions is swaped around.
Horizontal repeat unit 49 squares
with 1 square translation between
successive rows.
Row1: 1 2 4 6 7 5 3
Row 2: 1 3 5 7 6 4 2
Row 3 same as row 1
Row 4 same as row 2 etc

Figure 16